

Index to Volume 3

Subjects

(L) denotes Letter to the Editor, (N) short note, (R) conference or exhibition report

	PAGE		PAGE
Acoustic waves in gases	48(L), 164(L)	Curricula, physics, a one term in-service training course on modern developments in	24
Acoustics and its teaching	62	Dielectric materials in thin film capacitors	253
Alpha particle scattering analogue, a Rutherford	211	Doppler effect	164(L)
American Association of Physics Teachers	162(R)	Double slits, preparation of	340(L)
Apparatus		Editorial	1, 113
Automatic line-fitting device	159	Education in Singapore	71
Liquid expansion	107(L)	Education of physicists, the postgraduate	152
Raybox suitable for group work, a cheap	215	Educational exhibits at the 1968 Physics Exhibition	216(R)
Rutherford alpha particle scattering analogue	211	Einstein's relation between internal energy and mass	10
Scattering of particles	41	Electrical insulation, the uses of materials as	85
Simplified equipment for a laser operating in argon or oxygen	148	Electricity, the direct conversion of heat into	330
Use of models of a magnetic substance in demonstration and laboratory work	184	Electromagnetic theory, conventions and nomenclature in	66, 220(L), 274(L), 275(L)
Apparatus, physics, <i>see separate index</i>		Electron paramagnetic resonance	11
Applied science in schools, Shell grant for	210(N)	Electrons, are they real?	157
Articles in <i>Physics Education</i>	162(N)	Electrons, hot	249
ASE annual meeting, manufacturers' exhibition at the	91(R)	Electrostatics - a modern approach	106(L)
Astronomy at O level	35, 165(L), 166(L)	E.m.f., potential difference and voltage, the concepts of	238, 294
Atomism 1900	225, 307	Energy and mass, Einstein's relation between	10
Bad questions	9, 78, 158, 204, 232, 314	Enquiry 1968	293(N)
Belfast Science Fair 1967	104(R)	Equipment exchange register	78(N)
Bethe, Professor Hans	16	Examinations, university	93
Blackwell prize	82(N)	Exhibitions	
Book reviews, <i>see separate index</i>		Belfast Science Fair	104(R)
Brain teaser	277(L)	Educational exhibits at the 1968 Physics Exhibition	216(R)
Brain teasers	23, 61, 151, 176, 245, 322	Leeds Science Fair	44(R)
Capacitors, thin film, dielectric materials in	253	Manufacturers' exhibition at the ASE annual meeting	91(R)
Cardiff, physics course revisions at University College	208	Physics Exhibition, 1968	42(N)
Careers, new research, booklet by the Ministry of Technology	130(N)	West Midlands Science Fair	46(R)
Chelsea College Centre for Science Education	337(N)	Expansion, liquid	107(L)
Computer education in the technical college	293(N)	Experimental physics, seminars in	189
Computing in schools	275(L)	Experiments	
Computing in schools' physics courses, the place of	205	Faraday's law of induction	77
Conductor, charged insulated, oscillation of, in an electric field	33	Liquid expansion	107(L)
Conferences and courses, forthcoming	56, 112, 168, 224, 280, 344	Magnet, an eclipse major	220(L)
Constants, fundamental: their relationship and measurement	177	Modulus of impedance, measurement of	213
Conventions and nomenclature in electro-magnetic theory	66, 220(L), 274(L), 275(L)	Oscillation of a charged insulated conductor in an electric field	33
Cosmic physics	27, 276(L)	Peltier effect, how do you demonstrate?	163(L), 220(L)
Courses and conferences, forthcoming	56, 112, 168, 224, 280, 344	Production of single, double and multiple slits	161
		Radio-isotope experiments with a thyroid circulation analogue	250

	PAGE
Satellite tracking station as an aid to the teaching of physics, a school	281
Scattering, a Rutherford alpha particle, analogue	211
Scattering of particles, the	41
Science and technology information sources	306(N)
Science Education, Chelsea College Centre for	337(N)
Science Fairs and the Physics Exhibition	9(N)
Science Fairs, <i>see</i> Exhibitions	
Science history	163(L)
Science master, the role of the senior	9(N)
Seminars in experimental physics	189
SI units	164(L), 222(L)
SI units	
Conversion of some U.K. units to equivalent values in SI units	76(N)
Definition of derived SI units having special names	26(N), 76(N), 151(N)
SI units and the teaching of electricity and magnetism at sixth-form level	50(L), 51(L)
Slits, the production of single, double and multiple	161
Space for space-age physics	193
Static in industry	3
Stroboscope, uses for a xenon	40
Stroboscope, xenon, how do you use?	219(L)
Structural problems, the teaching of, by the use of electrical analogues	242
Success and failure in university physics courses	323
Surface tension, teaching	218(L)
Teaching	
Acoustics	62
Astronomy at O level	35

Physics apparatus

	PAGE
Calculator, Otis King	23
Capacitance boxes, 'Jay-Jay' variable	147
Colorimeter optical system	288
Decade boxes for schools	204
Disk thrower	288
Electronics teaching aid, new	70
Laser calorimeter system	204
Locktronics	237

	PAGE
Teaching (<i>continued</i>)	
A school satellite tracking station as an aid to the teaching of physics	281
Electrostatics – a modern approach	106(L)
Physical optics	69
SI units and the teaching of electricity and magnetism at sixth-form level	50(L), 51(L)
Structural problems by the use of electrical analogues	242
Surface tension	218(L)
Thermodynamics	52(L), 202
Teaching aids, physics	107(N)
Teaching experiment in a first year university course, a	49(L)
Technology and science information sources	306(N)
Textbook errors	
Acoustic waves in gases	48(L), 164(L)
Radiation loss by a black body in an evacuated container	48(L)
Thermodynamics, changes in the teaching of	202
Thermodynamics, the teaching of	52(L)
Thunderstorm, the	122
Thyroid circulation analogue, radio-isotope experiments with	250
Unanswerable question	340(L)
Vacuum systems, leak location in: Where is that leak?	57
Viscosity in the petroleum industry	139
Voltage, e.m.f. and potential difference, the concepts of	238, 294
West Midlands Science Fair	46(R)

	PAGE
Optics, fibre, experimental set	70
Pendulum, Foucault	288
Photocopier, dry, model 76	23
Projector, 8 mm daylight loop	204
Projector, overhead	23
Ratemeter, demonstration – type RM-308	237
Stenzl apparatus, R and B	147
Transparency maker, model 45	23

Authors (with titles)

(L) denotes Letter to the Editor, (R) conference or exhibition report

	PAGE		PAGE
Adams, R. W.: SI units	164(L)	Elton, L. R. B., and Jackson, D. F.: Nuclear models	131
Adams, R. W.: The overhead projector	339(L)	Ericson, T. J.: The concepts of potential difference, voltage and e.m.f.	238, 294
Allen, P. H. G.: Field mapping with conducting paper	266	Ericson, T. J.: Uses for a xenon stroboscope	40
Arkill, T. B.: Unanswerable question	340(L)		
Bancroft, A. M.: Uses of the overhead projector	107(L)	Fairbrother, R. W., and Trotter, A. W.: Educational exhibits at the 1968 Physics Exhibition	216(R)
Bassett, C. R., and Pritchard, M. D. W.: The teaching of structural problems by the use of electrical analogues	242	Foxcroft, G. E.: Optical activity	233
Bean, L. W.: The production of single, double and multiple slits	161	Garton, C. G.: The use of materials as electrical insulation	85
Benson, R. A.: How do you demonstrate the Peltier effect?	163(L)	Gebert, H.: The Doppler effect	164(L)
Birch, C.: Conventions and nomenclature in electromagnetic theory	274(L)	Gee, B.: Astronomy at O level	165(L)
Black, P. J., Dyson, N. A., and O'Connor, D. A.: Group studies	289	Gibbs, D. F.: Brain teaser	151, 277(L)
Black, P. J.: University examinations	93	Greaves, C.: The direct conversion of heat into electricity - thermoelectric conversion and thermionic conversion	330
Blitz, J.: Textbook errors	164(L)	Gregory, J. C.: "How do you use . . . ?"	219(L)
Bolton, W.: The scattering of particles	41	Guggenheim, E. A.: Einstein's relation between internal energy and mass	10
Burhop, E. H. S.: Professor Hans Bethe	16		
Burhop, E. H. S.: Quarks	246	Hadley, D. W.: Science history	163(L)
Cawthorne, R. G., and Jarvis, W. H.: Manufacturers' exhibition at the ASE annual meeting	91(R)	Harding, D., with Schofield, R.: The teaching of physics over fifty years and more	115
Cawthorne, R. G.: Physics courses and recruitment of students	341(L)	Harding, D. W.: Names in physics	315
Chambers, R. G.: Brain teaser	23	Harrison, G. B.: Project technology	138
Chambers, R. G.: Conventions and nomenclature in electromagnetic theory	220(L)	Heavens, O. S.: Lasers	169
Colbeck, J. E.: Teaching surface tension	218(L)	Henry, P. S. H.: 'Static' in industry	3
Cracknell, A. P.: Education in Singapore	71	Heywood, J. B.: Magnetohydrodynamics	260
Daisley, R. E.: SI units and the teaching of electricity and magnetism at sixth-form level	50(L)	Higson, L. E.: Physics teaching in the early twentieth century	119
Dance, J. B.: The elusive neutrinos	298	Hinson, D. J.: Computing in schools	275(L)
Davenport, T. C.: Viscosity in the petroleum industry	139	Hockey, D.: Cosmic physics	276(L)
Dorey, A. P.: Project work in schools	217(R)	Holloway, D. G.: The fracture of glass	317
Dunn, M. H., with Maitland, A., and Paul, D. M.: Simplified equipment for a laser operating in argon or oxygen	148	Houldin, J. E.: Faraday's law of induction	77
Dutton, P. E.: The place of computing in schools' physics courses	205	Houldin, J. E.: Measurement of modulus of impedance	213
Dyson, N. A., and O'Connor, D. A., with Black, P. J.: Group studies	289	Houldin, J. E.: Oscillation of a charged insulated conductor in an electric field	33
Elton, L. R. B.: Success and failure in university physics courses	323	Jackson, D. F., with Elton, L. R. B.: Nuclear models	131
		Jackson, N. F.: Dielectric materials in thin film capacitors	253
		Jakeways, R.: Leeds Science Fair	44(R)
		Jakeways, R.: Towards an understanding of gyroscopic motion	79
		James, W.: Conventions and nomenclature in electromagnetic theory	66, 275(L)
		Jardine, J.: Space for space-age physics	193

	PAGE		PAGE
Jarvis, W. H., with Cawthorne, R. G.: Manufacturers' exhibition at the ASE annual meeting	91(R)	Perry, G. E.: A school satellite tracking station as an aid to the teaching of physics	281
Jepson, R. N.: Brain teaser	277(L)	Phillips, J. A.: Preparation of double slits	340(L)
Kember, N. F.: Radio-isotope experiments with a thyroid circulation analogue	250	Phillips, M. D.: The visual Mach effect?	221(L)
Kenshole, G. E.: A teaching experiment in a first-year university course	49(L)	Post, H. R.: Atomism	225, 307
Keohane, K. W.: Editorial	1	<i>Praeceptor</i> : Are electrons real?	157
Keohane, K. W.: Editorial	113	<i>Praeceptor</i> : Helicon waves	200
Landry, P. C.: SI units and the teaching of electricity and magnetism at sixth-form level	51(L)	<i>Praeceptor</i> : Hot electrons	249
Lee, P. M., Montagu-Pollock, H. M., and Perkins, A.: A Rutherford alpha particle scattering analogue	211	<i>Praeceptor</i> : Pitch	313
Lindsay, R. B.: Acoustics and its teaching	62	<i>Praeceptor</i> : The four interactions of physics	17
McCaig, M.: How do you use a powerful magnet?	276(L)	<i>Praeceptor</i> : The visual Mach effect	83
McCrea, W. H.: Cosmic physics	27	Pritchard, M. D. W., with Bassett, C. R.: The teaching of structural problems by use of electrical analogues	242
McInally, M.: Textbook errors: Radiation loss by a black body in an evacuated container	48(L)	Reece, B. L.: West Midlands Science Fair	46(R)
Mason, B. J.: The thunderstorm	122	Ribchester, W. E.: Liquid expansion	107(L)
Maitland, A., Dunn, M. H., and Paul, D. M.: Simplified equipment for a laser operating in argon or oxygen	148	Richards, J. P. G., and Taylor, C. A.: Physics course revisions at University College, Cardiff	208
Montagu-Pollock, H. M., with Lee, P. M., and Perkins, A.: A Rutherford alpha particle scattering analogue	211	Richard-Jones, P.: Astronomy at O level	35, 166(L)
Montgomery, S. R.: Changes in the teaching of thermodynamics	202	Rogers, E.: Brain teaser	176, 245
Moore, W. S.: Electron paramagnetic resonance	11	Rogers, G. L.: Teaching physical optics	69
Newns, H. C.: Symmetry and conservation laws in classical mechanics	100	Rosser, W. G. V.: Special relativity via mechanics	197
O'Connor, D. A., with Black, P. J., and Dyson, N. A.: Group studies	289	Sanders, J. H.: Fundamental constants: their relationship and measurement	177
Ogborn, J. M.: The teaching of thermodynamics	52(L)	Saunderson, A.: A permanent magnet Gouy balance	272
Pacey, D. J.: Leak location in vacuum systems: Where is that leak?	57	Schofield, R., and Harding, D.: The teaching of physics over fifty years and more	115
Page, R. L.: A cheap raybox suitable for group work	215	Shilton, A.: The use of models of a magnetic substance in demonstration and laboratory work	184
Parks, K. E.: The teaching of physics in girls' schools	120	Simons, H. A. B.: The training of medical physicists	19
Paul, D. M., with Maitland, A., and Dunn, M. H.: Simplified equipment for a laser operating in argon or oxygen	148	Taylor, C. A., with Richards, J. P. G.: Physics course revisions at University College, Cardiff	208
Perkins, A., with Lee, P. M., and Montagu-Pollock, H. M.: A Rutherford alpha particle scattering analogue	211	Thomas, R. M. J.: A one term in-service training course on modern developments in physics curricula	24
		Thompson, D. L.: Electrostatics - a modern approach	106(L)
		Trotter, A. W., with Fairbrother, R. W.: Educational exhibits at the 1968 Physics Exhibition	216(R)
		Tubbs, M. R.: Seminars in experimental physics	189
		van Someren, E. H. S.: An automatic line-fitting device	159

	PAGE		PAGE
Wakefield, J.: Belfast Science Fair 1967 .	104(R)	Whelan, P. M.: Textbook errors: Acoustic waves in gases	48(
Warren, J. W.: Astronomy at O level .	166(L)	Williams, E. R., and Wooding, E. R.: The post-graduate education of physicists	13
Warren, J. W.: Teaching surface tension .	219(L)	Woodall, A. J.: Science history	163(
Warren, J. W.: The teaching of thermodynamics	52(L)	Wooding, E. R., with Williams, E. R.: The post-graduate education of physicists	13
Warsop, A.: How do you demonstrate the Peltier effect?	220(L)	Young, B. W. M.: Brain teaser	61, 3
Wenham, E. J.: The American Association of Physics Teachers	162(R)		

Book reviews

	PAGE		PAGE
Alonso, M., and Finn, E. J.: <i>Fundamental University Physics</i>	108	Kitaigorodskiy, A. I.: <i>Order and Disorder in the World of Atoms</i> (2nd edn)	10
Association for Science Education: <i>Teaching Science at the Secondary Stage</i>	53	Klein, H. A.: <i>Masers and Lasers</i>	11
Bailey, C. H.: <i>The Electromagnetic Spectrum and Sound - 50 Modern Experiments</i>	342	Laithwaite, E. R.: <i>The Engineer in Wonderland</i>	16
Boas, M. L.: <i>Mathematical Methods in the Physical Sciences</i>	167	Leck, J. H.: <i>Theory of Semiconductor Junction Devices - A Textbook for Electrical Engineers</i>	16
Bork, A. M.: <i>Fortran for Physics</i>	342	Maleh, I.: <i>Modern Physics</i>	8
Browning, D. R. (Ed.): <i>Science Abstracts 1</i>	109	Mee, F. G.: <i>Sound</i> (2nd edn reset)	10
Cronin, J. A., Greenberg, D. F., and Telegdi, V. L.: <i>University of Chicago Graduate Problems in Physics - with solutions</i>	223	Monaghan, J. K.: <i>Physics Examples for Today - with answers, Vol. 1</i>	22
Crow, L. R.: <i>Learning Electricity Fundamentals</i> (new and revised edn)	278	Orear, J.: <i>Fundamental Physics</i>	27
Dennery, P., and Krzywicki, A. (Harper's physics series, Seitz, F., ed.): <i>Mathematics for Physicists</i>	279	Pilling, H. V.: <i>Concise Intermediate Physics with Worked Examples and Exercises. M.K.S. Edition</i>	34
Elton, L. R. B., Jackson, D. F., and Zucker, I. J.: <i>Modern Physics: Definitions and Formulae for Students</i>	52	Redman, L. A.: <i>Essential Elementary Physics</i>	22
Fishlock, D.: <i>The New Materials</i>	341	Roderick, G. W.: <i>The Emergence of Scientific Society in England 1800-1965</i>	27
Fontaine, G.: <i>Transistors for Audio Frequency - Audio Frequency Amplification</i>	111	Schools Council Curriculum Bulletin No. 2: <i>A School Approach to Technology</i>	5
Fuchs, W. R. (translated by Wilson, M., and Wheaton, M.): <i>Modern Physics</i>	166	Scott, D. W., and Lyon, K. W.: <i>A Course in Practical Physics</i>	10
Hebert, A. P.: <i>Sundials Old and New, or Fun with the Sun</i>	110	Shortley, G., and Williams, D.: <i>Principles of College Physics</i> (2nd edn)	22
Hollingsworth, C. A.: <i>Vectors, Matrices and Group Theory for Scientists and Engineers</i>	53	Smith, A. G.: <i>Radio Exploration of the Sun</i>	11
Hywel White, D.: <i>Elementary Electronics</i>	109	Taylor, D.: <i>Introduction to Radar and Radar Techniques</i>	34
Irwin, K. G.: <i>The Romance of Physics</i>	54	Tricker, R. A. R.: <i>The Contribution of Science to Education</i>	5
Jones, G. R., Hempstock, T. I., Mulholland, K. A., and Stott, M. A.: <i>Teach Yourself Acoustics</i>	55	Trott, B.: <i>Report Writing</i>	5
Josephs, J. J.: <i>The Physics of Musical Sound</i>	55	Whiteside, D. T. (Ed.) (with Hoskin, M. A.): <i>The Mathematical Papers of Isaac Newton, Vol. 1 (1664-66)</i>	11
Katz, A.: <i>Principles of Statistical Mechanics - The Information Theory Approach</i>	53	Whittaker, E., and Robinson, G.: <i>The Calculus of Observations: An Introduction to Numerical Analysis</i>	22
		Winter, S. S.: <i>The Physical Sciences - An Introduction</i>	34